scientific text-books dealing with the practical side of pottery, though France, Germany, and the United States have each in turn shown great activity in this special department of work.

We must, however, confess to a little disappointment with the work, for, instead of a reasoned, adequate discussion of the many problems which beset the potter such as we had a right to expect, it proves to be a reprint, almost without alteration, of a series of articles that appeared rather more than a year ago in the columns of a trade journal. Perhaps it is for this reason that the volume resembles far too much the mere note-book of a diligent student, valuable in its way as a record of salient points and of the latest published work, but more valuable to the writer than to the reader.

We may mention as an example the opening paragraph of chapter ii. :—

"There are numberless varieties of clay, but it [*sic* !] may roughly be divided into ball clay, china clay, and fireclay; or, in other words, plastic clay, non-plastic clay, and refractory clay."

This is certainly very curious information for a potter, considering what a large part the ordinary surface clays of all countries have always played, and still play, in practical work. It is only the modern English earthenware manufacturer who could possibly conceive tnat such a statement was even approximately true.

On p. 13 we find the statement that "Two properties of clay—plasticity and cleavage—are of prime importance to the potter." Plasticity we understand, but that the cleavage of clay has anything to do with the potter is certainly not proved in the pages of the book.

One might criticise in the same way the chapters dealing with "glazes" and "enamels," where a number of statements are made as if with authority, though, to say the least, they are exceedingly dubious.

In the same way the chapter on industrial diseases does not merit its place, for if it were a true statement of the facts of the case the manufacturers have no defence to offer, whereas it is well known that there are the greatest practical difficulties in adopting the solution of the problem recommended, viz., the use of lead silicates of low solubility in dilute acid mixtures. Mr. Stephenson remarks that "the problem is one of ways and means, the chemistry of the subject being fairly simple." Certainly, for this is only another way of saying that the theory is very simple, but the practice happens to be difficult.

W. B.

TWO BOOKS ON HEREDITY.

(1) *Heredity and Eugenics.* A Course of Lectures Summarising Recent Advances in Knowledge in Variation, Heredity, and Evolution, and its Relation to Plant, Animal, and Human Improvement and Welfare. By William Ernest Castle, John Merle Coulter, Charles Benedict Davenport, Edward Murray East, William Lawrence Tower. Pp. vii+315. (Chicago: University of Chicago Press; London: Cambridge University Press.) Price 10*s.* net.

(2) *Richtlinien des Entwicklungs- und Vererbungsproblems.* By Dr. Alfred Greil. Zweiter Teil: Anpassung und Variabilität, Ererbung und Erwerbung, Geschlechtsbestimmung. Pp. iii+364. (Jena: Gustav Fischer, 1912.) Price 10 marks.

(1) "HEREDITY and Eugenics" consists of a series of lectures delivered at Chicago in 1911 by five of the best-known American students of the subject. It deals with plants, animals, and man, and is intended as a popular exposition of recent advances of our knowledge of heredity. The lecturers had evidently not consulted each other with regard to the parts of the subject to be dealt with by each, with the result that there is some overlapping, but in a book intended for those who have made no serious study of the problems involved, this is not a serious disadvantage. All the chapters are simply and clearly written, and the book is well illustrated with excellent figures. In general the cases chosen are well suited to the purpose, and for the untrained reader the book will give a clear idea of the present state of our knowledge and of its bearing upon practical problems.

The student who has attempted to keep abreast with recent work will find very little that is new to him; everything has been already published elsewhere, usually in an accessible form. To the trained biologist the long chapter by Prof. Tower will probably appear the most interesting; it is in parts difficult to follow, but gives a very useful summary of his large work on variation in Chrysomelid beetles, which to many is probably known only from reviews and abstracts.

The book as a whole appears to us to suffer from one rather serious defect—the dogmatic style in which most of the chapters are written. For a popular audience it is doubtless necessary to be as definite as possible, and to avoid undue emphasis on apparent exceptions which are really easily explicable. But the writers of this volume seem to carry this principle to lengths which may be absolutely misleading, and to confuse fact and inference in a way which almost inevitably tends

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to the discredit of the subject. In Prof. Tower's chapter this tendency shows itself chiefly in his references to the faulty methods of other investigators (Kammerer, Woltereck, Sumner, and others are mentioned in this connection), although no clear statement is given as to where the fault lies. The objections may be sound, but it is scarcely fair thus to impugn the accuracy of the work of others without making it quite clear in what the inaccuracy consists.

In some of the other chapters the dogmatic attitude appears rather in the form of leading the reader to believe that problems are completely understood when, as a matter of fact, many points with regard to them remain obscure. This is exemplified in Prof. Castle's short account of sex-determination in Rotifers and Daphnids, and more seriously in some of Prof. Davenport's statements about the inheritance of certain characters in man. That the statements are made in a more definite form than is justified by the known facts is doubtless explained by the necessity of making them clear and impressive to an untrained audience, but it is unfortunate that in preparing the lectures for publication more care was not taken to differentiate between facts which are absolutely known, and inferences which do not as yet admit of rigid proof.

In conclusion, it should be mentioned that the last two chapters include a couple of slips which might mislead the reader: on p. 277 *diabetes insipidus* (which appears to be confused with the common diabetes) is correctly placed among abnormalities which appear to be dominant, but it is stated that two normal parents may have defective children; and on p. 286 the statement is made with regard to recessive abnormalities that "two affected parents have exclusively normal children," where affected children is, of course, meant.

(2) Prof. Greil's book is of a very different character. It is an attempt to show that all the phenomena of development, inheritance, and sex-determination can only be properly considered from the point of view of epigenesis. The word "epigenetisch" appears on almost every page, and much dialectical skill is expended in showing that cases in which some form of predetermination appears to be the natural explanation are really epigenetic in character. The motto of one of the chapters—

> "Was du ererbt von deinen Vätern hast,
> Erwirb' es, um es zu besitzen,"

is the central theme of the book—that the germ only receives inherited tendencies, and that these cannot be studied apart from the manner and conditions of their development. In general, this is of course true, but in his treatment of it the author will seem to many readers to carry his thesis to extreme lengths. Since the development of an inherited tendency is a physiological process, it should theoretically be possible to induce a similar physiological process without any inherited tendency; therefore the inheritance of acquired characters must be possible in certain cases. Although in some cases the presence of a specific sex-chromosome causes the individual to become of one sex, in the absence of a sex-chromosome influences which bring about the same physiological condition in embryonic life will also cause it to be of that sex. Telegony must exist, because the bearing of young of a different breed must cause the mother to become "in a certain sense a hybrid." The whole hypothesis of Mendelian factors must be given up because it savours of preformationism rather than epigenesis. To summarise chapters in sentences of this sort is perhaps scarcely doing the author justice, but they give a fairly accurate idea of his attitude.

The book suffers from the absence of headings to chapters or paragraphs; there is no table of contents and an entirely inadequate index, so that it is very difficult to find out in what part of the book any given subject is treated. The style also is overloaded and difficult to follow. The last 130 pages are devoted to a critical account of theories of heredity, closely printed in exceedingly small type. L. DONCASTER.

PHOTOGRAPHIC ANNUALS.

(1) *The British Journal Photographic Almanac and Photographer's Daily Companion*, 1913. Edited by George E. Brown. Pp. 1448. (London: Henry Greenwood and Co., n.d.) Price: cloth, 1*s*. 6*d*. net; paper, 1*s*. net.

(2) *The American Annual of Photography*, 1913. Edited by Percy Y. Howe. Pp. 328. (New York: George Murphy, Inc., 1912.) Price 75 cents.

(1) ABOUT this time of the year nearly every photographer places on his bookshelf the 1912 edition of his B.J. Year Book, probably well ear- and thumb-marked, and becomes possessor of the 1913 issue, a volume of about equal size and weight. The current work, which is the fifty-second issue, covers 1448 pages, but of these about two-thirds are advertisements, and, as experience has shown, are most useful to both professional and amateur photographers. While the general contents of this well-known annual need no special reference, some notable items in the present issue deal with the important subject of the fitting up of the dark-room by the editor, an excellent and thoroughly practical article on methods of telephotography by Capt. Owen Wheeler, and 120

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